

Attorney Docket No. 81707.0173
Patent Application No. 10/083,635

REMARKS:

Claim 1 is amended. Claims 1 and 3-12 are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

Claims 7-9 are allowed.

The present invention relates to a laminated piezo-electric device. More specifically, the invention relates to a laminated piezo-electric device that can be particularly desirably used for the fuel injection devices for automobiles, for the positioning devices used for precision equipment such as optical devices, and as a drive device for preventing vibration. (Applicant's specification, at p. 1, lines 5-11).

Applicant believes the following amendments comply with requirements of form and thus may be admitted under 37 C.F.R. § 1.116(a). Alternatively, if these amendments are deemed to touch the merits, admission is requested under 37 C.F.R. § 1.116(b). In this connection, these amendments were not earlier presented because they are in response to the matters pointed out for the first time in the Final Office Action.

Lastly, admission is requested under 37 C.F.R. § 1.116(a) as presenting rejected claims in better form for consideration on appeal.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102:

Claims 1, 3, and 4 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Someji et al. (U.S. Patent No. 5,254,212). Applicant respectfully traverses the rejection as to amended claim 1. Claim 1, as amended, is as follows:

A laminated piezo-electric device comprising:
a pole-like laminate formed by alternately laminating piezo-electric layers and electrode layers in the direction of height;

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a pair of outer electrode plates formed on the different side surfaces of said pole-like laminate, a pair of neighboring electrode layers having said piezo-electric layer sandwiched therebetween being electrically connected at their side surfaces to the outer electrode plates which are different from each other;

flexible protruded electrically conducting terminals on the side surfaces of said pole-like laminate on where the outer electrodes are arranged, said flexible protruded electrically conducting terminals extending along the side surfaces of the electrode layers and adapted for following the stretching and contraction of said pole-like laminate in the direction of height thereof,

wherein the electrode layers are joined to said outer electrode plates via said protruded electrically conducting terminals, and

wherein a glass layer is formed on the side surfaces of said pole-like laminate on where the outer electrodes are arranged to as to cover the side surfaces of the piezo-electric layers, the root portions only of said protruded electrically conducting terminals are buried in said glass layer, and the tip portions of said protruded electrically conducting terminals protrude beyond the glass layer.

Applicant respectfully submits that Someji cannot anticipate present claim 1. As amended, claim 1 requires that "a glass layer is formed on the side surfaces of said pole-like laminate on where the outer electrodes are arranged to as to cover the side surfaces of the piezo-electric layers, the root portions only of said protruded electrically conducting terminals are buried in said glass layer, and the tip portions of said protruded electrically conducting terminals protrude beyond the glass layer." In Someji, the nickel plating 5 is either below the upper most surface of the insulating layer 7, 8 (i.e., the surface closest to the external electrode 9, 10) as evidenced by Figures 4 and 12; or flush with the upper most surface of the

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insulating layer as evidenced by Figures 13 and 14. Thus, in Someji, the electrically conducting terminal (metal 5) is entirely buried in the glass layer. In this case, the electrically conducting terminal (metal 5) cannot follow the expansion and contraction of the pole-like laminate in the direction of height, and is therefore subject to be broken by the expansion and contraction. Accordingly, there is nothing in Someji to teach or suggest that a portion of an electrically conducting terminal protrudes beyond the glass layer.

In amended claim 1, on the other hand, the electrically conducting terminal is buried only at its root portion in the glass layer, and the tip portion of the terminal produces flexibility that follows the expansion and contraction of the pole-like laminate in the direction of height, and is effectively prevented from being broken down by the expansion and contraction. (Applicant's specification, at p. 5, lines 30-35).

In light of the foregoing, Applicant respectfully submits that Someji could not have anticipated or rendered obvious claim 1, because Someji fails to teach or suggest each and every claim limitation. Claims 3 and 4 depend from claim 1 and cannot be anticipated or rendered obvious for at least the same reasons as claim 1. Withdrawal of this rejection is thus respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103:

Claims 5 and 6 stand rejected under 35 U.S.C. § 103(a) as being obvious over Someji et al. Applicant respectfully traverses this rejection.

Claims 5 and 6 depend from amended claim 1, and as such include all the limitations of claim 1, and therefore cannot be rendered obvious over Someji for at least the same reasons as claim 1. Withdrawal of this rejection is thus respectfully requested.

Claim 12 stands rejected under 35 U.S.C. § 103(a) as being obvious over Someji et al. in view of O'Neill (U.S. Patent No. 4,011,474).

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Claim 12 depends from claim 1 and therefore cannot be rendered obvious over Someji for the same reasons as discussed above. O'Neill cannot remedy the defect of Someji and is not relied upon by the Office for such. Instead, the Office cites O'Neill for disclosing "a variety of uses for his piezoelectric stack device including as an injection valve."

In light of the foregoing, Applicant respectfully submits that the cited references either alone or in combination could not have made claim 12 obvious. Withdrawal of this rejection is thus respectfully requested.

ALLOWABLE SUBJECT MATTER:

The Office objected to claims 10 and 11 as being dependent upon a rejected base claim, but states that claims 10 and 11 "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." In response, Applicant rewrote claim 10 in the manner suggested by the Office. Withdrawal of this objection and allowance of claim 10 is thus respectfully requested.

Claim 11 depends from claim 10 and is patentable for at least the same reasons as amended claim 10. Withdrawal of this objection and allowance of claim 11 is respectfully requested.

Claims 7-9 are allowed.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los

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Angeles, California telephone number (213) 337-6810 to discuss the steps necessary for placing the application in condition for allowance.

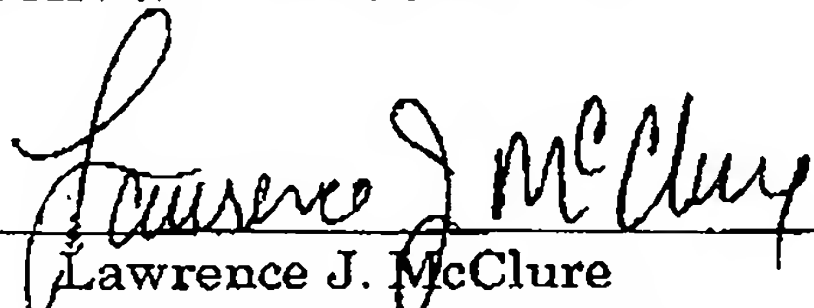
If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

HOGAN & HARTSON L.L.P.

Date: June 13, 2003

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